REMARKS

Claims 1-2, 5-6, 8-17 and 20-24 remain pending in the application with Claim 1 being independent.

Applicants have amended Claim 1.

New Claims 38-39 have been added.

Accordingly, upon entry hereof, Claims 1-2, 5-6, 8-17, 20-24 and 38-39 will be in active prosecution.

Applicants turn now to the substance of the Action.

Section 102(b) Rejection:

Claims 1-2, 8-12, 14, 16-17, 20, 22 and 24 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,861,458 (Naganawa) for the reasons given at page 3, paragraphs 4-5 of the Action.

Applicants traverse the Section 102(b) rejection.

For the Examiner's benefit, Applicants set forth a brief description of the present invention. The present invention provides a mold release agent for use with composite surfaces comprising a functional siloxane, a crosslinker, a thickening agent, a base, and water, said functional siloxane being dispersed in water.

Naganawa is directed to and claims a silicone water-based emulsion mold release agent characterized by its principal

ingredient being the condensation reaction product of a diorganopolysiloxane represented by a certain formula.

Specifically, the Examiner has stated that Naganawa discloses a polysiloxane that contains "multiple functional groups." While this appears to be the case, the Examiner has not indicated, however, that Naganawa anywhere discloses a crosslinker, and has instead argued that "[t]he polysiloxanes can crosslink among themselves. Thus, polysiloxanes are themselves crosslinkers."

Recognizing this shortcoming, the Examiner has attempted to characterize the polysiloxanes in Naganawa as both the "functional siloxane" and the "crosslinker" from claim 1. But this ignores the fact that in claim 1 the two elements are recited as separate components; i.e., claim 1 has a functional siloxane *and*, separately, a crosslinker. Quite a different composition is disclosed in Naganawa, where no crosslinker is used because the active mold-releasing ingredient there consists of the condensation product of a polysiloxane molecule having specific branching requirements as set forth in Eq. (1) at col. 2 of Naganawa. In other words, no independent crosslinking agent is used to link separate polysiloxane molecules -- those molecules are apparently directly linked to one another via condensation reactions.

In Naganawa, also the siloxane network effective to promote mold release (i.e., the condensation product of the polysiloxane molecule of Eq. (1)) is fully prepared -- the initial polysiloxane species is already fully cross-linked or "cured" -- before the mold release agent is ever applied to a mold. See e.g. Naganawa Application Examples at cols. 7-9, where the components (including the initial polysiloxane molecule) are combined and then the resulting suspension is permitted to sit for seven days to three months "to form a silicone water-based emulsion mold release agent." In other words, the suspension sits for days to months to permit the suspended polysiloxane molecules to undergo the condensation (linking) reactions that will produce the siloxane network useful to effect mold-release. Conversely, the composition of claim 1 is designed to be applied with the functional siloxane molecules in an as-yet uncross-linked state, effective to undergo cross-linking relatively rapidly at room temperature (as opposed to up-to months in Naganawa) *after the agent is applied* to a mold surface. The presence of the reactive crosslinker and the catalyst contribute to this capability.

Applicants recognize that claim 1 is directed to a product and not a method. But the different methodologies by which the respective compositions (Naganawa versus claim 1) are

prepared and used further demonstrate how their respective chemistries are different, based on their different compositions.

In summary, Naganawa does not disclose a crosslinker as claimed. The polysiloxane so disclosed cannot be equated to *both* the "functional siloxane" and the "crosslinker" in claim 1 to anticipate that claim, as the Action has advanced. The compositions of Naganawa and claim 1 are distinct for at least the reasons given, and it is respectfully submitted that the rejection of claim 1 based thereon has been overcome.

In order to reject a claim under 35 U.S.C. § 102(b), each and every element must be disclosed in the cited reference. In this case, Naganawa does not disclose a separate crosslinking agent (or "crosslinker"). Accordingly, Naganawa cannot anticipate claim 1.

Thus, the Section 102 rejection should no longer be maintained and should be withdrawn.

Section 103(a) Rejections:

Claims 1-2, 5-6, 8-17 and 21-24 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U.S. Patent No. 5,601,641 (Stephens) in view of U.S. Patent No. 6,294,007

(Martin) for the reasons given at pages 4-7, paragraphs 6-8 of the Action.

Claims 11, 16-17, 22 and 24 stand rejected under 35 U.S.C. § 103(a) over Naganawa for the reasons set forth at page 3, paragraph 5 of the Action.

Claim 13 stands rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Naganawa and optionally in view of U.S. Patent No. 5,464,586 (Wagner) for the reasons given at pages 4-5, paragraph 6 of the Action.

Claims 15 and 21 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Naganawa for the reasons given at page 5, paragraph 7 of the Action.

Applicants traverse the Section 103(a) rejections, and address each rejection and cited document below.

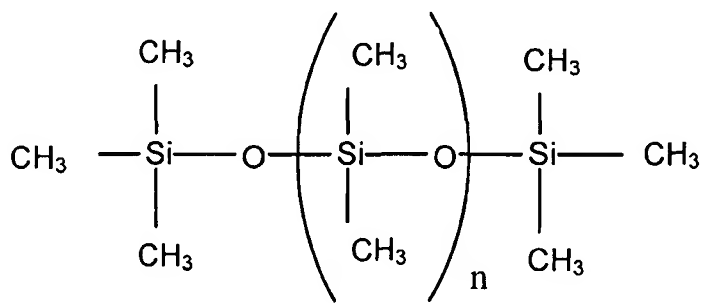
Stephens is directed to and claims an aqueous mold release composition for use in coating core surfaces in contact with rigid or flexible urethane foams, or urethanes, silicones, natural rubber, neoprene or other synthetic elastomers. The composition includes 0.1 to 12% a silane selected from methyl trimethoxysilane, ethyl-triethoxysilane, fluoro-triethoxysilane, methyl triethoxysilane, vinyl triethoxysilane, vinyl trimethoxysilane, gamma-ureidopropyltrialkoxysilane, where the alkoxy group has one to three carbon atoms, gamma-

glycidoxypropyltrimethoxysilane, octyltriethoxysilane, Gamma-amino propyltriethoxysilane, gamma-isocyanatopropyltriethoxysilane, tetraethoxysilane, Gamma-methacryloxypropyl trimethoxysilane, beta- (3, 4-epoxycyclohexyl) ethyltrimethoxy-silane, gamma-mercaptopropyltrimethoxysilane, and vinyl-tris (2-methoxyethoxy) silane, 0 to 16% a methyl terminated polydimethylsiloxane emulsified polymer, 0 to 10% a non-ionic surfactant, 0 to 8% a fluorinated alkyl ester surfactant, 0 to 2.5% an ethoxylated amine surfactant, 0 to 12.5% a silanol terminated polydimethylsiloxane having a weight average molecular weight of 400 to 310,000, 0.1 to 8% a lower alkyl alcohol where the alkyl has 1-3 carbon atoms, 0 to 2% a fungicide, 0 to 20% a metallic salt of an organic acid, 0.5 to 2% a weak acid to maintain the pH between 4.5-5.5, 0.1 to 15% hydroxyl terminated polybutadiene, and 40 to 97% water.

The Examiner has asserted that Stephens discloses a mold-release agent that includes, *inter alia*, a silanol-terminated polydimethylsiloxane. Such a siloxane would be a "functional siloxane" as recited in claim 1. Martin seems to be relied upon solely for disclosing a thickening agent.

Contrary to the Examiner's statement, Stephens does not disclose silanol-terminated polydimethylsiloxane. The

Examiner has cited Stephens, col. 2, lines 21-49, but no such siloxane is found in that passage. In fact, Stephens uses a methyl-terminated (not a silanol-terminated) polydimethylsiloxane, which is not a "functional siloxane" as recited in claim 1 and defined in the present application. The structural formula of methyl-terminated polydimethylsiloxane is presented below for the Examiner's convenience.



Methyl-terminated polydimethylsiloxane

As can be seen, methyl-terminated polydimethylsiloxane contains all methyl groups attached to the chain silicones; there are no functional groups that are effective to facilitate cross-linking. In order to cross-link this species using a cross-linking agent such as the alkoxysilanes described in Stephens, the ether linkages internal to the siloxane chain above must be broken to enable bonding (via a condensation reaction) to the cross-linking agent. The internal ether linkages are stable and such a mechanism will not progress at room temperature. <u>See</u> <u>e.g.</u> Stephens, col. 2, lines 6-8, 19-20

and 51-52, and also the claims, where the mold release composition must be heated (e.g., to 320°F) "to form the interpenetrating network" after it is applied. Conversely, claim 1 of the subject application recites a functional siloxane, which does not require breaking the ether linkages internal to the siloxane chain to achieve cross-linking, and which can be cross-linked rapidly at room temperature.

Moreover, the methyl-terminated polydimethylsiloxanes in Stephens there must be cured at high temperature, e.g., 320°F as noted at col. 2, lines 52-53.

Accordingly, Stephens does not disclose a silanol-terminal polydimethylsiloxane. Instead it discloses methyl-terminal polydimethylsiloxane, which is not a "functional siloxane" as claimed.

Martin discloses a mold release composition that is said to be paintable based on a blend of hydrophobic-modified organopolysiloxane and aminoorgano-/mercaptoorgano-organopolysiloxanes to provide mold release. Martin does not appear to disclose cross-linking the organopolysiloxane molecules, and indeed no agent is disclosed in Martin to achieve cross-linking. Martin is thus inapplicable to the present claims, irrespective of whether it discloses a thickening agent.

Martin adds nothing to Stephens, and as such fails to establish a proper Section 103 rejection, where Stephens could not.

Naganawa is discussed above.

Applicants point out that Naganawa requires curing the polysiloxane molecules (to form the final network via condensation reactions) for an extended period, such as 7 days to three months. See Naganawa, Application Examples, cols. 7-9.

Wagner is direct to and claims a process for molding and vulcanizing tires and other rubber articles in which negative molds are pressed into a blank with the help of a heating membrane under pressure. Wagner defines an improvement in the process by spraying the inside surface of the blank with evaporating the water in the slip and mold-release agent to leave a film of slip and mold release agent on the surface of the blank. The an aqueous slip and mold-release agent includes a) 0.5 to 6 wt. % polytetrafluoroethylene as a release effective substance, b) 20 to 40 wt. % mineral fillers, c) at least 40 wt. % water, d) up to 2 wt. % non-ionic surfactant as wetting and dispersing agent, e) silicone oil in an amount sufficient to replace up to 50% by weight of (a); and f) iron stearate present in an amount of not more than 1 wt. %.

Wagner adds nothing to Naganawa, and as such fails to establish a proper Section 103 rejection, where Naganawa could not.

None of the cited documents of record discloses, teaches or suggests a room-temperature curable mold release agent as defined by Claim 1 or those claims dependent thereon.

In view of the foregoing remarks, it is respectfully submitted that all of the rejections have been overcome, and that the claims are now in condition for allowance.

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